Small Business Innovation Research/Small Business Tech Transfer

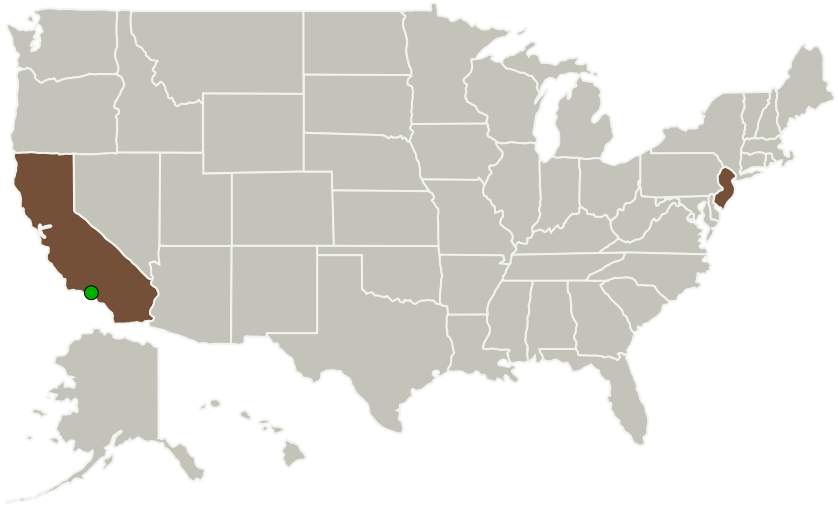
Optically Assisted Analog-to-Digital Converter for Next Generation "Software Defined" Radios, Phase I

Completed Technology Project (2017 - 2017)

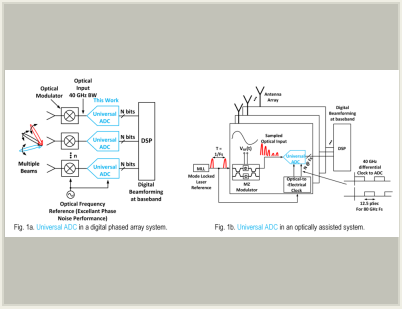
Project Introduction

Next generation commercial and DoD communication systems must meet the demand for higher data rates and the growing number of users in an increasingly over-taxed spectrum. Reconfigurable digital phased arrays that implement high speed ADCs promise to help provide a solution; however, creating broadband high speed high ENOB DACs remains a challenging bottleneck of the system. MaXentric's solution will be to create a Universal ADC capable of interfacing with purely electrical systems for moderate speed applications or optically assisted systems for high speed applications requiring precision timing with order of magnitude improvement in timing jitter. With the Universal ADC using optical assistance, it is anticipated that performance can approach 100 Gs/sec with greater than 8 bits ENOB allowing for truly multi-standard high performance "software defined" receivers such as applications of digital phased arrays.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
MaXentric Technologies, LLC	Lead Organization	Industry	Fort Lee, New Jersey
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



Optically Assisted Analog-to-Digital Converter for Next Generation "Software Defined" Radios, Phase I Briefing Chart Image

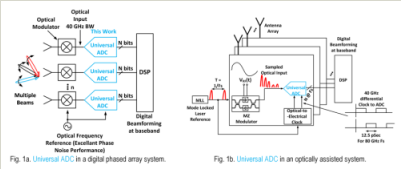
Table of Contents

Optically Assisted Analog-to-Digital Converter for Next Generation "Software Defined" Radios, Phase I

Completed Technology Project (2017 - 2017)

Primary U.S. Work Locations	
California	New Jersey

Images



Briefing Chart Image
Optically Assisted Analog-to-Digital Converter for Next Generation "Software Defined" Radios, Phase I Briefing Chart Image
(https://techport.nasa.gov/image/132402)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
MaXentric Technologies, LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

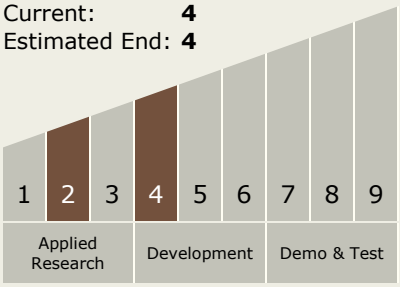
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Chris Thomas

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Optically Assisted Analog-to-Digital Converter for Next Generation "Software Defined" Radios, Phase I

Completed Technology Project (2017 - 2017)

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.4 Flight and Ground Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System